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09/729,240	12/05/2000	Krishna Bharat	0026-0001	4725

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EXAMINER
MAHMOUDI, HASSAN

ART UNIT	PAPER NUMBER
2175	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/729,240	Applicant(s) BHARAT ET AL.	
	Examiner Tony Mahmoudi	Art Unit 2175	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

DP 11/18/02 14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

DOV POPOVICI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *2* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-3, 5-8, 10-13, 15, 17-22, 24-27, 29-32, 34, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nanjo et al (U.S. patent No. 5,778,361) in view of Driscoll (U.S. patent No. 6,088,692.)

As to claim 1, Nanjo et al teaches a method of identifying (see Abstract) units within a search query (see column 5, lines 23-32) comprising:

identifying documents relating to the query (see column 6, lines 51-58) by comparing search terms in the query to an index of a corpus (see Abstract, and see column 21, lines 29-30);

generating a plurality of substrings from the query (see column 4, lines 4-12);

Nanjo et al does not teach identifying semantic units; and calculating, for each of the generated substrings, a value that corresponds to a comparison between one or more of the identified documents and the generated substring; and selecting semantic units from the generated substrings based on the calculated values.

Driscoll teaches a method for searching and ranking relevant documents from a database (see Abstract), in which he teaches identifying semantic units (see Abstract, and see column 3, lines 20-43); and calculating, for each of the generated substrings, a value that corresponds to a comparison between one or more of the identified documents and the generated substring (see column 6, lines 53-64); and selecting semantic units from the generated substrings based on the calculated values (see column 4, lines 27-32.)

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Nanjo et al to include identifying semantic units; and calculating, for each of the generated substrings, a value that corresponds to a comparison between one or more of the identified documents and the generated substring; and selecting semantic units from the generated substrings based on the calculated values.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Nanjo et al by the teaching of Driscoll, because identifying semantic units would enable the system to locate and rank relevant data within a search query; and calculating, for each of the generated substrings, a value that corresponds to a comparison between one or more of the identified documents and the generated substring; and selecting semantic units from the generated substrings based on the calculated values, would enable the system to define and apply relevancy values (factors) between documents as well as between contents of documents in order to identify the most relevant (strongest) match between the search terms and the identified terms within a query.

As to claims 2 and 26, Nanjo et al as modified teaches wherein the identification of the documents further includes:

generating an initial list of relevant documents (see Nanjo et al, column 3, lines 19-26, where "list of relevant documents" is read on "list of files or documents that satisfy the search criteria"); and

selecting a predetermined number of most relevant ones of the documents (see Nanjo et al, column 17, lines 35-50, where "most relevant" is read on "exact match") in the initial list as the identified documents (see Nanjo et al, column 8, lines 1-5, where "selecting documents" is read on "editing a particular document".)

As to claims 3, 8, 15, 22, 27, and 32, Nanjo et al as modified teaches wherein the selection of the semantic units further includes:

selecting semantic units from the generated substrings that have calculated values above a predetermined threshold (see Nanjo et al, column 20, lines 41-50, where "predetermined threshold" is read on "predetermined step size".)

As to claims 5, 10, 17, 24, 29, and 34, Nanjo et al as modified teaches wherein the calculated values are weighted based on a ranking defined by relevance of the identified documents, such that substrings that occur in more relevant ones of the identified documents are assigned higher calculated values than substrings that occur is less relevant ones of the documents (see Driscoll, column 6, lines 1-64.)

As to claim 6, Nanjo et al teaches a method of locating documents (see column 4, lines 4-18) in response to a search query (see column 6, lines 22-26), the method comprising:

receiving the search query from a user (see column 6, lines22-26);

generating a list of relevant documents based on search terms of the query (see column 6, lines 30-35);

identifying a subset of documents that are most relevant ones of the documents in the list of relevant documents (see column 17, lines 35-47, where "most relevant document" is read on "exact matches".)

generating a plurality of substrings of the query (see column 4, lines 4-12); and

refining the generated list of relevant documents based on the selected semantic units (see column 19, lines 15-25, where "refining" is read on "optimizing".)

Nanjo et al does not teach:

calculating, for each of the generated substrings, a value related to one or more documents in the subset of documents that contain the substring; and

selecting semantic units from the generated substrings based on the calculated values.

Driscoll teaches a method for searching and ranking relevant documents from a database (see Abstract), in which he teaches: calculating, for each of the generated substrings, a value related to one or more documents in the subset of documents that contain the substring (see column 6, lines 53-64); and selecting semantic units from the generated substrings based on the calculated values (see column 4, lines 27-32.)

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Nanjo et al to include: calculating, for each of the generated substrings, a value related to one or more documents in the subset of documents that contain the substring; and selecting semantic units from the generated substrings based on the calculated values.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Nanjo et al by the teaching of Driscoll, because calculating, for each of the generated substrings, a value related to one or more documents in the subset of documents that contain the substring; and selecting semantic units from the generated substrings based on the calculated values, would enable the system to define and apply relevancy values (factors) between documents as well as between contents of documents in order to identify the most relevant (strongest) match between the search terms and the identified terms within a query.

As to claims 7 and 31, Nanjo et al as modified teaches wherein the identified subset includes a predetermined number of the most relevant ones of the documents in the list of relevant documents (see Nanjo et al, column 17, lines 35-50, where "most relevant" is read on "exact match".)

As to claim 11, Nanjo et al teaches a system (see Abstract) comprising:

a server connected to a network (see column 12, lines 7-12, where in a "networked environment", the "computer system **400**" plays the role of "a server"), the server receiving search queries from users via the network (see column 6, lines 22-26), the server including:

at least one processor (see column 11, lines 28-30, and see column 12, lines 7-12); and

a memory operatively coupled to the processor (see column 11, line 30), the memory storing program instructions that when executed by the processor (see column 11, lines 57-67), cause the processor to:

identify a list of documents (see column 4, lines 4-18) relating to the search query (see column 6, lines 22-26, and see lines 30-35) by matching individual search terms in the query to an index of a corpus (see Abstract, and see column 21, lines 29-30); generate a plurality of substrings from the query (see column 4, lines 4-12.)

Nanjo et al does not teach: calculate, for each of the generated substrings, a value relating to one or more documents of the identified list of documents that contain the generated substring; and select semantic units from the generated substrings based on the calculated values.

Driscoll teaches a method for searching and ranking relevant documents from a database (see Abstract), in which he teaches: calculate, for each of the generated substrings, a value relating to one or more documents of the identified list of documents that contain the generated substring (see column 6, lines 53-64); and select semantic units from the generated substrings based on the calculated values (see column 4, lines 27-32.)

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Nanjo et al to include: calculate, for each of the generated substrings, a value relating to one or more documents of the identified list of documents that contain the generated substring; and select semantic units from the generated substrings based on the calculated values.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Nanjo et al by the teaching of Driscoll, because calculate, for each of the generated substrings, a value relating to one or more documents of the identified list of documents that contain the generated substring; and select semantic units from the generated substrings based on the calculated values, would enable the system to define and apply relevancy values (factors) between documents as well as between contents of documents in order to identify the most relevant (strongest) match between the search terms and the identified terms within a query.

As to claim 12, Nanjo et al as modified teaches wherein the processor refines the identified list of documents based on the selected semantic units (see Nanjo et al, column 19, lines 15-25, where "refining" is read on "optimizing".)

As to claims 13 and 20, Nanjo et al as modified teaches wherein the system transmits the refined list of documents to the user (see Nanjo et al, column 3, lines 19-28, where "transmitting to the user" is read on "displaying to the user.")

As to claim 18, Nanjo et al teaches a server (see column 12, lines 7-12, where in a "networked environment", the "computer system **400**" plays the role of "a server") comprising:

a processor (see column 11, lines 28-30, and see column 12, lines 7-12); and

a memory operatively coupled to the processor (see column 11, line 30), the memory including:

a ranking component (see column 26, lines 31-35) configured to return a list of documents (see column 4, lines 4-18) ordered by relevance in response to a search query (see column 6, lines 22-26, and see lines 30-35); and

a semantic unit locator component configured to locate semantic units (see column 10, lines 1-4) in search queries entered by a user (see column 7, lines 15-18.)

Nanjo et al does not teach locating semantic units based on a predetermined number of most relevant documents in the list of documents returned by the ranking component.

Driscoll teaches a method for searching and ranking relevant documents from a database (see Abstract), in which he teaches locating semantic units based on a predetermined number of most relevant documents in the list of documents returned by the ranking component (see column 3, lines 20-35.)

Therefore, it would have been obvious to a person having ordinary skill in the art at the tiem the invention was made to have modified Nanjo et al to include locating semantic units based on a predetermined number of most relevant documents in the list of documents returned by the ranking component.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Nanjo et al by the teaching of Driscoll, because locating semantic units based on a predetermined number of most relevant documents in the list of documents returned by the ranking component, would enable the system to locate, rank, and present to the user, matches found most relevant to the search term within a search query, which will make the search process more efficient by avoiding to present less relevant findings to the user.

As to claim 19, Nanjo et al as modified teaches the server further including: a search engine (see Nanjo et al, column 15, lines 31-38) configured to refine the list of documents based on the located semantic units (see Nanjo et al, column 19, lines 15-25, where "refining" is read on "optimizing".)

As to claim 21, applicant is directed to the remarks and discussions made in claims 1, 6, 11, and 18 above.

As to claim 25, Nanjo et al teaches a computer-readable medium storing instructions for causing at least one processor to perform a method that identifies semantic units within a search query (see Abstract, and see column 11, line 28 through column 12, line 12.)

For the remaining teachings of this claim, applicant is directed to the remarks and discussions made in claim 1.

As to claim 30, applicant is directed to the remarks and discussions made in claims 1, 6, 11, 18, and 25 above.

As to claim 36, applicant is directed to the remarks and discussions made in claims 1, 6, 11, 18, 25, and 30 above.

3. Claims 4, 9, 14, 16, 23, 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nanjo et al (U.S. patent No. 5,778,361) in view of Driscoll (U.S. patent No. 6,088,692) as applied to claims 1-3, 5-8, 10-13, 15, 17-22, 24-27, 29-32, 34, and 36 above, and further in view of Robertsonet al (U.S. Patent No. 6,216,123.)

As to claims 4, 9, 16, 23, 28, and 33, Nanjo et al as modified teaches the selection of the semantic units (see Driscoll, Abstract, and see column 3, lines 20-43.)

Nanjo et al as modified does not teach discarding the generated substrings that overlap other ones of the generated substrings with higher calculated values.

Robertson et al teaches a method and system for rapid retrieval in a full text indexing system (see Abstract), in which he teaches discarding the generated substrings that overlap other ones of the generated substrings with higher calculated values (see figure 11, and see column 19, line 19 through column 20, line 20, where "discarding" is read on "combining the two clusters into a single cluster".)

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Nanjo et al as modified to include discarding

the generated substrings that overlap other ones of the generated substrings with higher calculated values.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Nanjo et al as modified, by the teaching of Robertson et al, because discarding the generated substrings that overlap other ones of the generated substrings with higher calculated values, would result in avoiding duplicates of already identified matches and produce more efficient relevancy values between matched strings within the search query, resulting in identifying and presenting the strongest (closest) matches to the users.

As to claim 14, Nanjo et al as modified teaches a network (see Nanjo et al, column 12, lines 7-12.)

Nanjo et al as modified does not teach wherein the network is the Internet and the corpus is a collection of web documents.

Robertson et al teaches a method and system for rapid retrieval in a full text indexing system (see Abstract), in which he teaches wherein the network is the Internet and the corpus is a collection of web documents (see column 6, lines 44-65.)

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Nanjo et al as modified to include wherein the network is the Internet and the corpus is a collection of web documents.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Nanjo et al as modified, by the teaching of Robertson

et al, because wherein the network is the Internet and the corpus is a collection of web documents, would expand the usability of the system across the universe by connecting to the internet and searching web-based documents from any remote location accessible by a computer to the network.

4. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nanjo et al (U.S. patent No. 5,778,361) in view of Driscoll (U.S. patent No. 6,088,692) as applied to claims 1-3, 5-8, 10-13, 15, 17-22, 24-27, 29-32, 34, and 36 above, and further in view of Freimann et al (U.S. Patent No. 6,134,554.)

As to claim 35, Nanjo et al as modified does not teach wherein the computer-readable medium is a CD-ROM, floppy disk, tape, flash memory, system memory, hard drive, or data signal embodied in a carrier wave.

Freimann et al teaches a system and method for recording receipt of information (see Abstract), in which he teaches wherein the computer-readable medium is a CD-ROM, floppy disk, tape, flash memory, system memory, hard drive, or data signal embodied in a carrier wave (see column 14, lines 17-21.)

Therefore, it would have been obvious to a person with ordinary skill in the art at the time the invention was made to have modified Nanjo et al as modified to include wherein the computer-readable medium is a CD-ROM, floppy disk, tape, flash memory, system memory, hard drive, or data signal embodied in a carrier wave.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Nanjo et al as modified by the teaching of Freimann et

al, because the computer-readable medium being a CD-ROM, floppy disk, tape, flash memory, system memory, hard drive, or data signal embodied in a carrier wave, would increase the system flexibility to incorporate any/all means of data storage in order to maintain maximum flexibility and compatibility with a variety of hardware systems featuring any of the mentioned variety of storage means.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to further show the state of art with respect to methods and systems of rapid indexing, searching, and retrieving documents from databases in general:

U.S. Patent No. 5,544,049 to Henderson et al.

U.S. Patent No. 6,236,768 to Rhodes et al.

U.S. Patent No. 6,289,353 to Hazlehurst et al.

U.S. Patent No. 6,295,529 to Corston-Oliver et al.

6. Any inquiries concerning this communication or earlier communications from the examiner should be directed to Tony Mahmoudi whose telephone number is (703) 305-4887. The examiner can normally be reached on Mondays-Fridays from 08:00 am to 04:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dov Popovici, can be reached at (703) 305-3830.

tm

November 18, 2002

DOV POPOVICI
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